

**Integrating Art with Environmental  
and  
Global Education  
by  
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## Introduction and Rationale

To develop a sense of our place in the world, we need to know where we live and how we fit into our environment. We also need to know how this environment is connected with the rest of the world. If the world could be seen as a huge spider web with its delicate strands interconnecting in complex relationship, we would see that each separate strand of the web is interwoven with others and is essential to the whole. One way to discover how we fit into the delicate web that is our environment is to study the plants around us.

Patrick Morrow said' "By experiencing a place, you become its guardian." With exposure to local ecological and cultural resources, as well as those of other parts of the world, we become more effective stewards of the land. As we learn to recognize the beauty of different species of plants, learn of their historical importance and potential uses, we see the connections between plants, animals, birds and insects. Growing a garden of wildflowers native to our environment automatically builds relationships with birds, animals, butterflies and insects that have evolved with these plants over the millennia. As we learn about our own environment and the species of plants, animals and insects that inhabit that environment, we develop an awareness of other ecosystems and their inhabitants. Studying a garden that students have created, from an artistic perspective, creates an awareness of the beauty of our environment. Experiencing nature creates an awareness of environmental problems, and as Morrow says, builds a sense of guardianship and a desire to preserve and protect nature.

Global Education and knowledge of other cultures is important in this global age and prepares students to be active, responsible citizens. It raises awareness that there is more to the world than our own backyards and neighborhoods and that since we share the same world and planet with many different cultures, we are affected by environmental and global issues that cut across all boundaries. While our cultural backgrounds may give us different views on life, we have common needs and values that are connected to our environment.

A knowledge of the art of different cultures from around the world and the processes involved in that art can help to dispel stereotypes and prejudices and develop an appreciation for those cultures. Knowledge of the art materials and processes will also help to develop a deeper understanding

of the history, economy, and politics of other countries as well as the environment that these cultures live in.

This is a long-term project. It will require a number of years for the wildflower garden to be established and flowering. The project is broken down in two sections. The first section deals with the establishment of a wildflower garden and related art projects. The second part of this project looks at art from different areas of the world. It looks at the art of different cultures that has a nature theme. The project can be easily integrated with the Social Studies curriculum for Grades 5 to 8.

Grade 5- Topic A: Canada, Its Geography and People

Topic C: Canada's Links with Other Countries

Grade 6- Topic B: Greece: An Ancient Civilization

Topic C: China: A Pacific Rim Nation

Grade 7- Topic A: Culture

Topic B: Cultural Transitions: A Case Study of Japan

Topic C: Canada: A Bilingual and Multicultural Country

Grade 8- Topic A: Geography of Canada and the United States

Topic C: South America: A Case Study of Brazil.

It can also be integrated with the Science curriculum:

Grade 5- Topic E: Wetlands and Ecosystems

Grade 6- Topic E: Trees and Forests

Grade 7- Topic A: Interactions and Ecosystems

## Art Objectives

### Grade 5 and 6

#### Reflection

Component 1- Study and analyze the individual character of natural objects or forms.

- A. Natural forms tell something about the way that they were made.
- B. Nature forms can be examined for less visible characteristics.
- D. A form can be examined analytically to see how the whole is composed of its parts.
- F. Natural forms reveal many different structures (skeletal, spiral, orbital, radial, floating, grid, fan, arch, concentric, faceted, etc.).

Component 2- Impose standards on designed objects and invent improved versions.

- A. Shapes evolve and change over time.
- B. Designed objects can be evaluated on the basis of function and attractiveness.

Depiction

Component 4- Modify forms by abstraction, distortion and other transformations

- A. The direction of shapes determines the static or dynamic quality of the work.
- D. Forms can reveal their functions.
- I. Gridding can be used for systematically capturing or distorting the proportions of things.

Component 5- Refine methods and techniques for more effortless image making.

- E. Surface reflections, shading and shadows affect the viewpoints.

Component 6- Employ surface qualities for specific effect.

- D. The character of marks is influenced by drawing or painting tools and methods.

Composition

Component 7- Create emphasis through the use of structural devices and strategies.

- B. The important area in a composition can be enhanced by radial, conical and framing structures.
- D. Arrangements of forms can lead the lead to a dominant area in a composition.

Component 8- Create unity by integrating the parts of the composition to the whole.

- C. Transitions of color, texture or tone relate the parts of a composition to a unified whole.
- D. Attention should be given to well distributed negative space as well as to the balance of positive forms.
- E. Interesting negative space complements and binds the positive areas in to a harmonious whole.

- F. Pervasive color, texture, or tone can unify a composition such as an overall wash of paint, a glaze, a textural additive, a surface treatment or the like.

## Expression

Component 10- Purpose- Record or document activities, people and discoveries.

- A. Everyday activities can be documented visually.
- B. Special events such as field trips, visits, and festive occasions can be recorded visually.
- D. Knowledge gained from study or experimentation can be recorded visually.

Subject Matter- Develop themes, with an emphasis on global awareness, based on:

- A. Plants and animals
- B. Environment and plants
- E. People

Media and Techniques-

Concept A: Drawing

- Use models to make drawings with increasing accuracy
- Use drawing to add details, textures, create pattern or suggest volume

Concept B: Painting

- Continue working with tempera paint or tempera thickened with additives such as liquid laundry starch, fabric softener or wallpaper paste and watercolor.
- Mix and use color tones to achieve perspective.
- Use washes under and over painted images to indicate color value from light to dark and simulate depth of field.
- Create impasto effects.

Concept C: Printmaking

- Apply printing techniques to composition including block out techniques, combinations of types of printing, and use of more than one color.

## Grade 7

Drawings

Component 1- Record single images and simple units.

- C. Recording the internal and external boundaries of forms is one of the purposes of drawing.

Component 2- Investigation- Select and identify line, value and texture in the natural and man-made environment for image making.

- A. Line can vary in direction, location, quality, emphasis, movement and mood.
- B. Value in drawing is affected by the qualities of surfaces and the qualities of light.
- C. Texture, as the character of a surface can be depicted in drawing by the arrangement of line and marks.

Component 3- Communicate- Be expressive in their use of elements in the making of images.

- C. Characteristic qualities of a person or object can be emphasized by the quality of line used in an image.

Component 4- Articulate and Evaluate- Learn to use the basic vocabulary of art criticism in description of their work.

- A. The skill of describing materials and techniques used in creating an image in part of learning to talk about art.
- B. The skill of identifying design elements used in creating an image is part of learning to talk about art.

### Compositions

Component 1-Experiment with color effects on composition.

- C. Color schemes create certain moods in images.

Component 2- Experiment with techniques and media within complete compositions of two and three dimensions.

- B. Relief compositions can be assembled or formed using materials in additive or subtractive ways.

Relationship 1- Learn to use the basic vocabulary of art criticism in description of their work.

- A. Terms describing materials, techniques, subject matter and design elements comprise the basic vocabulary of art.

### Encounters

Component 1- Sources of Images- Identify similarities and differences in expressions of selected cultural groups.

- A. Symbolic meanings are expressed in different ways by different cultural groups.
- B. Different cultural groups use different materials to create images or artifacts.

Component 3- Impact of Images- Search for contemporary evidence relating to themes studied.

- C. The ways people generate visual works can be influenced by a number of factors.

## Grade 8

### Drawings

Component 1- Record- Examine and simplify basic shapes and spaces.

- A. Shapes may be organic or geometric.
- B. Geometric and organic shapes can be used to create positive and negative spaces.

Component 2- Investigate- Employ space, proportion and relationships for image making.

- C. The amount of detail depicted creates spatial depth in two-dimensional works.
- G. The principle of repetition or emphasis can be applied to achieve unity in two-dimensional works.

Component 3- Communicate- Use expressiveness in their use of elements in the making of images.

- B. Points of view can be developed to express certain ideas such as mood or proximity in two-dimensional works.
- C. Scale drawings and simple systems can communicate architectural ideas in drawing forms.

Component 4- Articulate and Evaluate- Use the vocabulary of art criticism to develop a positive analysis of their work.

- A. Identifying and describing techniques and media is part of learning to talk about art.

### Compositions

Component 2- Experiment with the transformation of space in compositions.

- B. Value or color can emphasize negative space over positive space.

Relationships 1- Investigate the use of pattern and emphasis in the creation of compositions.

- A. A pattern or motif can be repeated to create certain spatial effects.

Relationships 2- Use the vocabulary of art criticism to develop a positive analysis of their work.

- A. Techniques and media students have used to make their images can be identified and described.

Organizations 1- Experiment with value, light, atmosphere, and color selection to reflect mood in composition.

- A. Mood in composition can be affected by proximity or similarity or selected figures or units.

## Encounters

Component 1- Sources of Images- Investigate form and structure of natural and man made objects as sources of images.

- A. Skeletal structure affects the shape and surface of an object, artifact, or the human figure.

Component 2- Transformation Through Time- Compare interpretations of natural form and structure in the creation of man made artifacts through time and across cultures.

- B. Natural forms and structures have been interpreted by artists of various cultures for decorative and artistic purposes.

Component 3- Impact of Images- Consider the impact of natural form and structure upon human activity and tastes in the modern world.

- A. Natural forms and structures provide sources for environmental design in the modern world.
- B. Structural design of shelters may enhance or inhibit human activities.
- C. Decorative and functional works enhance public and private buildings.

## Diagnosis of Students

In Grades 5 to 8, students have begun to develop their own style of visual expression. Their work becomes more individualistic and imaginative. They learn that their artistic preferences may be different than those of their classmates. This leads them to an appreciation of multiple artistic solutions and interpretations. They are able to select and transform ideas. They can discriminate, synthesize and appraise those ideas and apply the skills they already possess to their expanding knowledge of visual art. They realize that perception, analysis and critical judgment are interwoven.

Students at this age are in the formal operation level in Piaget's stages of cognitive development. They are able to make predictions and hypotheses. They are able to use metacognition to understand their own thought processes and to question their own ideas and solutions to problems. They are able to generate a number of possible solutions to problems and can evaluate these solutions to see which is the best solution for the problem that they are working on.



As the students experiment with environmental and global art, they gain a deeper appreciation of their own values, the values of other cultures, and the connection of visual arts to universal human needs, values and beliefs. They understand that the art of every culture is influenced by not only aesthetic values, but also by social and environmental factors.

**Objectives:**

- to prepare students to be active, responsible citizens
- to prepare students to become effective stewards of the earth
- to raise awareness of environmental factors that affect not only their own environment but also those of other cultures
- to dispel stereotypes and prejudices
- to develop an appreciation for the art of other cultures
- to develop a knowledge of the effects of environment and the resources available for making art in different ecosystems
- to promote an awareness of the beauty of nature
- to develop a sense of the student's place in his/her own environment
- to cooperate in building an ecosystem which will promote an understanding of the earth's ecological functions
- to promote awareness of the interactions between plants, animals, and insects in an ecosystem
- to develop an awareness of the need to preserve the natural heritage of our ecosystems
- to develop an awareness of how artists in the past have used nature in their artwork

## **Lesson Blueprint**

### **Section One- Environmental Art**

#### *Lesson One- Designing the Wildflower Garden*

In this lesson, students will look at garden design from around the world. They will discuss and compare the similarities and differences involved in the planning of a garden in different areas of the world. The students will research and determine the types of plants that would be suitable for the site that they will be using for their garden. They will plan the design and layout of the garden, taking into consideration the heights, colors and blooming times of the flowers that they will be using.

#### *Lesson Two- The Impressionist Garden*

The students will complete a watercolor painting of their impression of what the completed garden will look like. They will study the work of Claude Monet and use this as a guide to create an Impressionistic style of garden painting.

#### *Lesson Three-Planting the Garden*

The students will go through the process of planting the wildflower garden. This will include site preparation, seed preparation, seeding methods, watering and weeding. The garden can be certified by the Canadian Wildlife Federation in their Backyard Habitat Program.

#### *Lesson Four- Drawing from Nature*

This lesson creates an awareness of the science of botany and how it relates to art and illustration. Students will make detailed drawings of plants in their garden and use botanical terms to identify and label the types of leaves, petals and flower parts.

#### *Lesson Five- Leaf Prints*

The students will use leaves in a printmaking process to create patterns on fabric or paper. These prints can be used for a number of different projects.

#### Lesson Six- Flower Painting- Close Up

The art of *Georgia O'Keefe* will be studied for this lesson. The students will use her technique of enlarging on one of the wildflowers from the garden and create a watercolor painting.

#### Lesson Seven- Flower Casting

The students will work with a clay base and one of the wildflowers used in a previous lesson. They will make an impression of the wildflower in the clay and fill it with plaster. This plaster impression will be painted and used as a wall hanging.

#### Lesson Eight-Natural Dyes

Students will experiment with the creation of dyes from natural plant sources. They will dye fabric or paper which can be used in later lessons.

#### Lesson Nine- Impasto painting

Vincent Van Gogh's painting *Sunflowers* is the inspiration for this lesson. Students will examine this painting, as well as other works by Van Gogh, and create an impasto painting of wildflowers.

#### Lesson Ten- Architecture and Nature

In this lesson, students will study the architecture of traditional housing around the world. They will determine how the environment and the resources available affect the type of structure that is built. They will research birds that nest in this area and the types of nests that they build, taking into consideration the resources available to them. They will create a birdhouse of their own design for a species of their choice, taking into consideration the habits of that bird.

#### Lesson Eleven-Environmental Art

This lesson will take place outside. It will be an on-site artwork using natural materials available in the chosen area. The works will be photographed and will be accompanied by a written description of each student's experience in creating it.

## **Section Two- Global Art**

### **Lesson One- Rainforest Dodecahedron**

Students will research the different areas of the world that have rainforests, as well as their similarities and differences. There are four different types of rainforests: the mangroves of Southeast Asia, the cloud forest of South America, the temperate areas of the North American Pacific Northwest, and the tropical forests along the equator. This lesson can be integrated with the Social Studies curriculum for Grade 7 and 8. The students will create a dodecahedron covered with information and pictures of the area that they have chosen to study.

### **Lesson Two- Jungle Prints**

This lesson can be used to study a number of different areas in the world that have rainforests. The students will study the work of Henri Rousseau and his scenes of tropical jungles. They will use a combination of printmaking and painting to create a jungle print.

### **Lesson Three- Rainforest Carnival**

The projects in this lesson could be used to create a rainforest atmosphere for a class or school carnival. The students will create poison arrow frogs, vines with leaves, and nests.

### **Lesson Four- Papermaking**

This lesson could be incorporated with Grade 6 Social Studies and the study of China. The students will create their own paper from used paper. They will incorporate dried wildflower petals into the paper.

### **Lesson Five- Flower Pounding**

Flower pounding is a traditional Japanese art form so this lesson could be tied in with the Grade 7 Social Studies curriculum. The students will use flowers and leaves to create a design. The flowers and leaves are pounded so that the pigment is embedded into fabric or paper.

### **Lesson Six- Grass Stars**

Grass stars were traditionally made in Scandinavia. They can be made from wheat or native grasses. This lesson could be part of the Grade 7 Social Studies curriculum and the study of Culture.

### Lesson Seven- Bark Painting

Bark painting has traditionally been done in a number of different cultures.

This lesson could also be used for the *Grade 7 Social Studies* curriculum.

The two cultures looked at in this lesson are the Otomi Indians of Central America and the Australian Aborigines. Students will create their own version of a bark painting using crumpled brown grocery bags. They can also use pieces of bark from dead trees but it must be stressed that removing the bark from live trees can be harmful to them.

# Section One

## Environmental Art

### Lesson One

#### Designing the Wildflower Garden

##### Materials:

Measuring Tape

Graph paper

Pencils

Overhead projector

Transparencies

##### Resources Books:

Wilkinson, Kathleen. 1999. *Wildflowers of Alberta*. Edmonton: Lone Pine Publishing.

Vance, F.R., Jowsey, J.R., McLean, J.S. 1984. *Wildflowers across the Prairies*. Vancouver: Douglas and McIntyre.

Johnson, Lorraine. 1999. *100 Easy to Grow Native Plants for Canadian Gardeners*. Toronto: Random House of Canada.

Wilkinson, Kathleen. 1990. *Trees and Shrubs of Alberta*. Edmonton: Lone Pine Publishing.

Howarth, David and Keane, Kahlee. 1995. *Wild Medicines of the Prairies*. Saskatoon: Root Woman and Dave.

Kindscher, Kelly. 1992. *Medicinal Wild Plants of the Prairies*. Lawrence, Kansas: University of Kansas Press.

Katsuhiko, Mizuno. 1991. *Masterpieces of Garden Art in Kyoto*. Kyoto: Kyoto Shoin Co.

<http://darkwing.uoregon.edu/~helphand/homepage.html>

History of Landscape Architecture

Developed by Kenneth Helphand

##### Introduction:

The concept of gardening and garden design has evolved differently in many parts of the world. The Western vision of a garden evolved from the theory of growing crops in straight lines. Both Western and English gardens

are carefully laid out in a grid system of carefully planned patterns. Most plantings are in straight lines.

The Asian concept of gardening took a different path. The Japanese garden incorporates many natural features in a limited space. Gardens are laid out as miniature landscapes. In Japan, art and nature are closely interconnected. Their gardens may appear irregular, or not symmetrical, even though every plant has been carefully chosen and placed. Rocks and pools of water are incorporated into the design of the garden. Reflections of trees and plants are carefully considered. Some of their gardens lack any plants but consist entirely of carefully arranged stones and sand. Buildings are often incorporated into the landscape with long, curving, horizontal lines. Views of the garden give the impression of a painting framed by doors and windows. Gardens often seem to be an extension of a home because of the style of construction.

Culture plays an important part of garden design. The above web site has examples of gardens from many different areas of the world. Students could choose an area to research. They could examine the gardens of different areas of the world and study how they incorporate symmetry or asymmetry. The use of positive and negative space can also play an important part in planning a garden. The placement of paths, rocks and logs can be used to direct the viewer's attention within the garden. The design styles that they research can be reflected in the design of their wildflower garden.

As our natural, undisturbed pieces of prairie shrink in size and disappear entirely in some places, it is important to preserve part of the natural heritage of our ecosystem. If possible, it would be good to plan a field trip to an area of undisturbed prairie to study the types of plants that grow there. The above reference books will help the students to identify the different species of plants. It would also be great if a number of trips could be made to this area at different times of the year so that different species of flowers would be blooming. One thing that will soon become obvious is that nature doesn't plant in straight lines. Wildflowers tend to grow in groups or masses without sharp corners or edges.

You can buy packets of wildflower seeds at just about any garden center or store that sells seeds. However, many of these are not native to the Canadian prairies. Native wildflowers and grasses are those species that occurred here naturally at the time of settlement and were not brought over from other continents. Species that aren't native to the prairies, though they may be beautiful, can cause problems. They can become common weeds.

Many of them aren't adapted to survive our cold winters. They may flourish the first year after they are planted, but not return the second year.

A wildflower garden that is made up of plants native to the prairies requires little maintenance once it is established. Prairie plants are deep-rooted perennials that hold and enrich the soil. Once the garden is established, it will require less watering than other flower gardens. Lorraine Johnson, author of one of the above resource books, kept track of the time she spent working in her native garden for one growing season. The grand total was 3 hours and 15 minutes. That included weeding, watering, pruning, deadheading, digging, and dividing plants. She didn't use any fertilizers or chemicals.

There are a number of things to consider when planning a wildflower garden:

1. Habitat- The amount of sunlight and moisture that the area you have chosen for your garden receives is important when determining which plants to use. Mimic a natural habitat similar to your site. Prairie plants do well in areas that receive lots of full sunlight. If the area is more shaded, you might want to consider woodland plants.
2. Purpose- Are you planting the garden to attract birds and insects, a place to play, eat lunch, just relax, or all of the above? There are certain species of flowers that are known for their ability to attract birds or insects. You may want to consider flower fragrances. The addition of one of our native species of cactus to the garden must be carefully considered if the students are playing in this area.
3. Features- do you want to have arbors, paths or walkways through the garden?  
These can also make access for weeding much easier. Will you have room for benches? Rocks and logs can be used to make the garden look more natural and will also create microclimates that attract different species of insects. Will you incorporate sculpture and create points of view?
4. Choice of flowers and/or shrubs- there are a number of things to consider when choosing the plants that you will include in your garden. One of the most obvious considerations is the color of the flowers and their blooming times. You should also consider the height of the plants. Smaller plants should be planted closer to borders and paths with the larger plants behind them. Random placement of flowers, instead of planting them in rows, creates a more natural look.



Procedure:

1. Determine where your wildflower garden will be best placed. Have the students measure the area that you have to work with.
2. Plot the garden area to scale on graph paper. The Canadian Wildlife Federation has a package of information for planning a garden. It comes with checklists, tables, and graph paper. More information is available at [www.cwf-fcf.org](http://www.cwf-fcf.org) Funding is also available for school projects through their Communities for Wildlife program.
3. The students could be divided into groups to work on different areas of the garden. One group could research taller plants and determine their flower color, blooming time and height. Another group could research the smaller plants for edges and borders. Other groups could research insects and birds that may be attracted to their garden. Other research projects could include the history, medicinal and ceremonial uses of native plants.
4. When everyone has completed their research, the whole class will work on a design for their garden remembering the above considerations. If possible, this could be done with an overhead projector. The garden space could be printed on to the transparencies and changes can easily be made to the garden plan as the students discuss different garden arrangements.
5. Draw the final scale drawing of the garden.

Evaluation:

Quality of research

Group cooperation

Consideration of criteria (color, height, blooming times)

Participation in class discussion

Effort

## Lesson Two

### The Impressionist Garden

Materials:

Examples of Monet's garden paintings

Watercolor paints

Brushes

Heavy white paper

Easel or solid surface to work on  
Masking tape  
Water  
Rags  
Copies of the final wildflower garden plan

#### Introduction:

Impressionism is an art movement that became popular after 1874. Impressionist artist understood that what we see when we look at an object is actually the light reflected from it. Our eyes don't see solid colored shapes but instead, see many spots of color of varying shades. When people first saw an exhibit of Impressionist paintings in 1874, they didn't like it. They were used to seeing realistic styles of paintings and thought that these paintings looked unfinished.

One of the most famous painters of this movement was Claude Monet (1840-1926). Monet was famous for his style of painting with short brush strokes and dabs of colors. He is best known for his paintings of gardens and their reflections in water. Because these paintings reflected qualities of light, Monet was very concerned with the effects of outdoor light and atmosphere. He was one of the first artists to paint his landscapes entirely out of doors. He liked to paint in the afternoon, working quickly before the sun shifted and changed the light qualities that he was trying to capture.

In this lesson, students will try to capture the qualities of light and color that they will see in their wildflower garden. Using their garden plan as a guide, they will try to create a feeling of what their garden will look like when it is blooming. This lesson could also be repeated a number of times in the year, once the garden is established, to capture the different blooming times and colors of flowers in the garden.

#### Procedure:

1. Study the examples of Claude Monet's work. How did his use of color help to unify his compositions? How did he create a feeling of depth? How does he achieve the quality of reflected light?
2. Decide what colors will be used for the background wash. Using a number of different colors in different areas will divide the picture into distinct areas. Students should consider the background of their painting. Is the garden next to a building or an open area? For this

- painting, there will be no preliminary drawing. The washes will be used to divide the painting into background, middle ground and foreground.
3. Fully submerge the paper in water for a few moments so that both sides are wet.
  4. Lay the paper on the board or solid surface that the student will be painting on. Leave it for a couple of minutes and then mop off the excess water with a rag.
  5. Tape the top edge of the paper to the board. Pull the paper down so it is flat and tape the other edges. Use the rag to mop up any excess water that may still be on the paper.
  6. While the paper is still wet, lay down the washes for the background. The colors will run into each other where they meet so there will be no distinct lines. Try to create a sense of depth in the painting with the use of light and dark values.
  7. Using the garden plan as a guide, the students will add dabs of color in the appropriate spaces for each type of wildflower. They will need to consider the heights of the flowers, their color and the different shades of green in their leaves.
  8. Since these paintings are done quickly, students should have time to complete a couple of them in the class time.

Evaluation:

Use of background wash

Use of short dabs of paint

Effective use of color

Effort

### **Lesson Three**

#### **Planting the Garden**

Materials:

Shovels

Rototiller if area is large enough

Organic herbicides

Seed (Seed sources are listed at the end of the lesson)

Rake

Water

### Introduction:

Proper site preparation is very important in establishing a wildflower garden. Native wildflowers, grasses and shrubs are well adapted to our prairie environment but they are no match for many of the aggressive plants that have been introduced from other continents. If you can remove these plants before planting your garden, it will make it much easier to maintain in the future. The garden can be seeded in either the spring or fall. If you are doing a fall planting, you will want to wait until there is no danger of the seeds germinating before winter (late October). A fall planting allows the natural freezing and thawing of the seeds. Our prairie flowers have evolved in this climate and may germinate quicker if allowed to follow this natural cycle. If you are planting in the spring, you could also plant the seeds inside and transplant them in the spring after there is no danger of frost. Most of the seed suppliers can provide you with instructions for planting their seeds. They may specify a procedure called stratification. This involves moistening the seed and placing them in a freezer to stimulate the natural freezing and thawing cycle.

### Procedure:

1. If it is possible, it is a good idea to work up the garden area, water it and let any seed that is lying dormant germinate. This may take a couple of months.
2. Large clumps of grass can be removed with a shovel. If the area is large enough, a rototiller could be brought in to work it up.
3. If some unwanted species persist, an organic herbicide can be applied. Regular weeding and removal of plants will usually make the use of herbicides unnecessary.
4. Before planting, the seedbed must be lightly packed. This can be done by having the students stamp their feet over the entire garden area. The seedbed is firm enough when a footprint barely registers on it.
5. Sprinkle the seeds in the appropriate areas.
6. Lightly rake the seeds into the soil.
7. Lightly push the seeds into the soil by once again walking lightly over them.
8. Watering is important during the first 4 to 6 weeks so that the seeds can germinate quickly. Without water, many of the seeds may lie dormant until they have gone through the natural freeze and thaw

- cycle of winter. Even with watering, some of the species may not germinate until the second growing season.
9. Weeding- to distinguish between weeds and wildflowers wait until the flower develops. You will have some idea of possible plants that could be a weed problem by identifying the plants that were in the area before it was planted. If you aren't sure, wait until the flower develops. Many of the wildflowers may not bloom in their first year. They are adapted to growing on our dry prairie and will spend most of their energy establishing a strong root system.
  10. To reduce competition from annual weeds, the area can be mowed early in the spring. Don't mow it lower than 4 to 6 inches from the ground. This will also remove the dead stalks from the last year's plants.
  11. The Canadian Wildlife Federation has a program that recognizes efforts of individuals or groups who establish areas that encourage the preservation of native species, provide habitat for birds, insects and wildlife, and provide less of a strain on the environment. The program is called the Backyard Habitat Program. This garden could be certified through this program. See the web site address included with Lesson One.

Evaluation:

Group cooperation

Effort

Seed Sources:

ACLA Native Plant Restoration Inc.  
3208 Bearspaw Dr. N.W.  
Calgary, AB. T2L 1T2

Alberta Nurseries and Seeds  
Box 20  
Bowden, AB. T0M 0K0  
Blazing Star Wildflower Seed Co.  
Box 143  
St. Benedict, SK. S0K 3T0

Bow Point Nurseries (trees and shrubs)  
Box 16, Site 3, RR 12  
Calgary, AB. T3E 6W3

Cactus Coulee Seeds  
RR 2  
Cessford, AB. T1R 1E2

Enviroscapes  
Box 38  
Warner, AB. T0K 2L0

Knutson and Shaw Growers  
Box 295  
Vulcan, AB. T0L 2B0

Prairie Habitats  
Box 1  
Argyle, MB. R0C 0B0

## Lesson Four

### Drawing From Nature

Many scientists use art in their work. Botanists are scientists who study plants. They often use drawings of the details of plants to help them in their work. They will often draw the entire plant including the flowers, leaves, stems and roots. Two famous artists who did detailed drawings of plants and animals are Carl Linnaeus (1707-1778) and John James Audubon (1785-1851).

Carl Linnaeus was a botanist. He grew up in Sweden where his father kept a large garden. He loved to study the different plants in his father's garden and to make drawings of them. He went on to become a doctor and a botanist. He wrote a number of books which were illustrated with detailed sketches of the tiny parts of different plants.

John James Audubon is known mainly for his paintings of birds. He was born on an island in the Caribbean. His father was a sea captain and told John of the wildlife and plants of the countries that he visited. When Audubon was older, he moved to the United States. He was fascinated with the wildlife and beautiful birds there. He decided that he was going to paint a picture of every species of bird in America. He traveled all across the country using a Nature Notebook to make sketches and notes of the birds and their habitat. Each page would be filled with sketches and notes about the surroundings where he saw the birds, important details about their appearance, and their lifestyle. By the end of his life, he had painted 435 watercolors of the birds of America.

In this lesson, students will compile a number of detailed drawings of the plants in their wildflower garden, similar to those of Linnaeus and Audubon. These drawings will be compiled into a Nature Notebook. The students will want to use botanical reference books to identify types of leaves, flower parts. A number of books are listed below which have botanical keys that can be used for identification. They will also look at the different structures and patterns created by nature in leaves and flowers.

#### Materials:

Paper	Pencils
Colored pencils	Watercolors
Brushes	Pencils
Water	Magnifying glass
Examples of the work of Linnaeus and Audubon	

Bager, Bertel. 1976. *Nature as Designer: A Botanical Art Study*. New York: Van Nostrand Reinhold Co.

Crittenden, Mabel and Telfer, Dorothy. 1992. *Wildflowers of the West*. Surrey, B.C.: Hancock House Publishers.

Vance, F.R., Jowsey, J.R., McLean, J.S. 1984. *Wildflowers Across the Prairies*. Vancouver: Douglas and McIntyre.

#### Procedure:

1. Each student will choose a plant from the wildflower garden to draw. If the garden is a small one, a number of students may work on the same plant so all of the flowers aren't being picked and removed. It wouldn't be recommended to remove the roots of the plant from the garden.
2. Place the flower on a table in an area where there is good lighting.
3. The first drawing will be a life-size drawing of the entire plant.
4. On the same drawing paper, make sketches of the details of the leaves, flowers, and stems. A magnifying glass would be helpful at this stage to see tiny details such as the veins in the leaves and flower petals, and the stamens and sepals of the flower. These sketches can be larger than the real plant so more details can be captured. The students will identify how the natural structures within the plants create patterns and how these patterns are repeated. How does the skeletal structure affect the shape and surface of the plant?
5. Draw one leaf flattened out so all the veins and edges are obvious.
6. Along the side of the drawings, add notes about the plant. Give its common and scientific name. Identify the different parts of the plant with neat lettering and arrows to the appropriate areas. Identify the types of leaves and leaf arrangements.
7. Add color to the drawing using colored pencils or watercolor.

#### Evaluation:

Life size drawing

A number of detail drawings

Leaf detail

Common and scientific name

Proper identification of plant parts

Appropriate use of color



## Lesson Five

### Leaf Prints

The wildflower garden, with its large variety of plants, will have examples of a number of different types and sizes of leaves. These can be used with paint or ink for printing. Green leaves will work the best for this project. If the leaves have begun to dry, they will become brittle and will break when the students try to make prints with them. The designs can be printed on sheets of paper to create an artwork on their own or they can be used to create gift-wrap, greeting cards, napkins, placemats or tablecloths. The designs could also be printed on to fabric. For these projects, you will want to use color fast textile dyes or fabric paint.

#### Materials:

Leaves	Paint
Newspaper	Wax paper
Sponge	Paper or cloth
Roller (a printer's brayer or a rolling pin)	
Sponge	Paper towel

#### Procedure:

1. Discuss the patterns discovered in the botanical studies of plants from Lesson Four. Give each student a number of leaves. Have them make rough drawings of patterns or designs that they can create using their leaves. Discuss the use of positive and negative space and how the composition will change with the amount of space left between leaf prints.
2. Spread the newspaper over the working area.
3. Press the leaf flat with the roller.
4. Place a small dab of paint on the wax paper. Wet a sponge and squeeze as much of the moisture out as possible. Dip the sponge in the paint.
5. Dab the paint-covered sponge over the surface of the leaf until it is evenly coated.
6. Place the leaf, paint side down on the paper or cloth. Cover the leaf with a piece of paper towel.
7. Using the roller, roll evenly over the leaf.
8. Carefully remove the paper towel and the leaf.

9. Repeat the procedure to create a design. If the student is creating a whole sheet of repeated prints, they should start on the edge of the paper that is the furthest away from them. This prevents smudging.
10. If printing on a T-shirt, put a piece of cardboard inside the shirt before printing to avoid printing through to the back of the shirt.

Variation:

1. Color the back of the leaf with crayons.
2. Place on a sheet of paper or cloth with the colored side down.
3. Cover with another piece of paper or cloth. Using a warm iron, press over the paper and the leaf. This will transfer the crayon to the paper or cloth.
4. Remove the paper and leaf.

Evaluation:

Neatness

Effective design

Effective use of color

Effort

## Lesson Six

### Flower Painting- Close Up

Georgia O'Keefe (1887-1986) is an artist who is famous for her paintings of flowers that are so close up that they filled her canvases and often disappeared off the edges. Her paintings made you feel like you were right inside a giant flower. Georgia was born in Wisconsin and studied in Chicago and New York. Many of her art teachers encouraged her to change her style of painting but she kept working in her unique style and became a famous artist. She portrayed the world as she saw it, using many unusual perspectives. Her favorite subjects were flowers. She painted them very close up, very far away or sometimes only showing a portion of the flower. She is also well known for the images she painted in New Mexico. She eventually settled permanently there, living and painting in the desert until she died at ninety-eight.

In this lesson, students will study Georgia O'Keefe's work and create a close up painting of a flower from the wildflower garden.

### Materials:

Examples of Georgia O'Keefe's paintings

Pencil    Tempera or watercolor paints

Brushes    Water

Paper    Live flowers

### Procedure:

1. Observe the wildflower for a few minutes. Examine the edges of the petals and the patterns or veins within each petal. Look for the stamen and sepal. Analyze the colors and the shades of color in each petal.
2. On the paper, lightly sketch the shape of the flower, drawing it large enough that the edges of the petals go off the edges of the paper.
3. On a separate piece of paper, experiment with paint colors.  
Watercolors look darker when they are wet. You may have to lay a second wash over the first if it isn't dark enough. To make a color paler, you dilute it with water. Watercolor paints are transparent so you can mix colors on the paper by laying one over the other.  
Experiment with different tints and values of colors by adding black and white.
4. Decide on the background color and paint the background. You can add leaves to the background.
5. Paint the flower with the colors as close to the real wildflower as possible.

### Evaluation:

Flower fills paper and runs off the edges

Experimentation with color

Final flower color

Effort

## **Lesson Seven**

### **Flower Casting**

This lesson can be done after the Drawing from Nature or the Flower Painting- Close Up lessons. The plants and flowers that were picked and used in those lessons can also be used in this lesson. This will reduce the number of flowers that will have to be picked from the garden. In this

lesson, students will consider the placement of the flowers as they make their clay impression. How can they create a unified composition? The lines created by the flowers shapes can vary in their location and direction within the composition. How do these lines emphasize the arrangement?

**Materials:**

Flowers and leaves	Straws
Modeling clay	Acrylic varnish
Plaster of Paris	Paint
Brushes	Newspaper
Empty box (shoe box lids work well)	

**Procedure:**

1. Give the students a number of plants to work with. Have them experiment with different arrangements, vertically, horizontally and diagonally, until they find an arrangement that they are happy with. The students should be able to express why this arrangement works for them using the terminology previously discussed (unified composition, emphasis, positive and negative space).
2. Spread newspaper over work area.
3. Press a layer of modeling clay into the bottom of the box. It should be at least   " thick. The clay could be rolled out with a rolling pin before it is put into the box to ensure that it is fairly even.
4. Arrange the flowers and leaves in an interesting pattern. Gently push the flowers into the clay. They should be deep enough to leave an impression. Carefully pull the wildflower out of the clay.
5. If you are not happy with the design, smooth out the clay surface and try it again.
6. Cut a straw into sections that are at least three inches long. Insert two of these sections into the top area of the clay. This will leave two holes in the plaster that can be used for hangers.
7. Mix the Plaster of Paris according to the directions given on the package. Pour it over the clay impression, being careful not to move the straws. The plaster should be between 1    and 2 inches thick.
8. Let the plaster dry overnight. Tear away the box.
9. Separate the clay from the plaster.
10. Using diluted paints, add a wash of color in the appropriate areas. The background could also be painted.

11. Brush on a coat of acrylic varnish. This is available in either a glossy or a matte finish.

Evaluation:

Effective design

Good impression of wildflower

Effective use of color

Effort

## Lesson Eight

### Natural Dyes

People have been using dyes for more than 5,000 years. Most of the colors used in these dyes came from bark, berries, leaves, roots and flowers of many different plants. Most plant materials will yield some type of dye when boiled. You'll be surprised at the colors that you will be able to produce. The dyes can be used to color fabrics and paper, or as paints. Most of the colors will be soft, natural and often muted. If you've mixed up a color that you like but would like to have it a little darker, you can re-dye it or let it soak longer in the dye bath. Rusty nails can also be added to make a color darker. This is a time consuming project so it may be helpful to have the students work in groups and try to obtain certain colors.

Materials:

Cooking pot

Vinegar

Stove

Water

Mixing spoon

Colander or strainer

Mixing bowl

Fabric or paper

Plant material

Storage containers with lids

You may want to use old pots, spoons, bowls, and storage containers, as the dye will probably stain them.

Procedure:

1. Cut or tear up the plant materials into small pieces and place in a large pot.
2. Add enough water to cover the plant material. Boil for 5 to 20 minutes or until you achieve a color intensity that you are happy with.

3. Remove from heat and allow to cool.
4. Strain the mixture into one of the storage containers.
5. Add a tablespoon of vinegar to act as a mordant (or set) for the color.
6. Reheat the dye and dip fabric, yarn or paper into it. If you would like the color to be darker (for fabric only) simmer in the dye bath until you achieve a color that you like. Stir or turn the fabric often so that it dyes evenly.
7. Rinse in fresh water. Spread the fabric or paper out to dry. You can freeze the dye water and reuse it.

Wildflower Dye sources:

Northern Bedstraw (*Galium boreale*)

The roots of this plant provide a red dye. You will only want to dig up the roots of this plant occasionally as part of the maintenance plan in the wildflower garden.

Golden Rod (*Solidago species*)

There are many types of Golden Rod that grow in southern Alberta and other parts of North America. The flowers can be used to create a strong yellow dye. They can be used fresh or dried, but fresh flowers will give the strongest color. Leaves and stems can also be used.

Butte Marigold (*Hymenoxis acaulis*)

This flower also produces a bright yellow dye. It can also be used fresh or dried.

Yarrow (*Achillea millefolium*)

The flowers of Yarrow can be used to obtain a light green dye. The room will also be filled with a delightful scent as this plant boils. The plant is also boiled and used as a tea.

Other Plant Dye Sources:

<u>Plant</u>	<u>Use the</u>	<u>Color</u>
All berries	berry	variety
Beets	leaves and roots	pinkish-green
Carrots	green tops	green
Coffee	grounds	brown
Dandelion	flowers	yellow

Grass clippings	leaves	green
Onion	skins	light brown
Oranges	peels	yellow
Parsley	leaves	light green
Sunflowers	seeds	blue
Tea	dried leaves	brown
Walnuts	shells	brown

Evaluation:

Safety considerations

Group cooperation

Effort

## Lesson Nine

### Impasto Painting

Vincent Van Gogh's (1853-1890) favorite color was yellow. He loved the warm, vibrant color and the rich color contrasts that he could achieve with it. One of his famous paintings, *Sunflowers*, shows the flowers as bright yellow sunbursts in a yellow vase on top of a yellow table. There are many beautiful yellow wildflowers that can be used in this lesson to create a similar style of painting.

Van Gogh is also well known for his impasto style of painting with short brush strokes and rolling motions. He would often apply his paint to the canvas with a knife or brush, creating textures in the surface of the paint. The rhythm in his style keeps the viewer's eyes moving throughout his compositions.

Van Gogh painted approximately 800 paintings in his short lifetime. Only one painting sold while he was alive. Though he is a famous painter now, he wasn't well known during his lifetime.

Van Gogh wrote many letters to his brother in which he discussed his feelings about art and life. He describes how he gained so much inspiration from creating art that he felt rich and blessed. These letters have become a unique part of the history of art.

Materials:

Examples of Van Gogh's paintings including *Sunflowers*

## Examples of Van Gogh's letters to his brother

Jars for mixing paint	Spoons
Paintbrushes	Heavy paper or poster board
Flat container (polystyrene grocery trays work well)	
Popsicle sticks	Pencils
Tempera paint	Powder detergent
Wildflowers	Vases (optional)
Writing paper	

### Procedure:

1. Examine Van Gogh's Painting *Sunflowers*. Have each student view the painting from far away and from up close. Look at the brush strokes and how they contribute to the effect of the painting. Read some of the letters that Van Gogh wrote to his brother. How do they help to explain his thoughts about creating art? Do these letters change the way that you look at the painting?
2. In a jar, add one tablespoon of detergent to    cup of tempera paint. Stir until mixed. Tempera paint thicknesses can vary so you may need to thin the paint mixture with water or thicken it with more detergent. Other thickening agents that could be used instead of detergent are powdered cornstarch or white flour. Use a separate jar for each color.
3. Scoop some of each color of paint on to the flat container. Keep the colors about one inch apart to begin.
4. If it is a nice day outside, this activity could be done in the wildflower garden. If it is going to take place in the classroom, the students could be put into groups at tables. Each table would have a vase of wildflowers for them to paint.
5. Draw the outline of the vase and flowers in pencil on the paper or poster board.
6. Apply paint to the paper or poster board with the Popsicle sticks, making textures, lines and shapes in the paint.
7. Mix colors together in the flat container to create new colors.
8. Fill the entire paper or poster board with paint.
9. Allow to dry overnight.
10. The students will write a journal entry or letter to someone close to them describing how the world would be different if there was no art. How would it affect their lives, would they notice any difference?



#### Evaluation:

Effective placement of vase and flowers on paper  
Creation of textures, lines and shapes in the paint  
Experimentation with color mixing  
Journal entry/letter  
Effort

### Lesson Ten

#### Architecture and Nature

Traditional architecture around the world has been determined by the environment and the resources available to build structures. Birds and animals are faced with the same problems when building their own shelters. In this lesson, students will look at the materials used to build traditional structures around the world. They will apply the information gathered to the design and construction of bird houses built from materials available in the area of their wildflower garden. They could also combine this lesson with a study of the birds that nest in the area. There are a number of great guidebooks and web sites available for information on birds and their nesting areas.

#### Materials:

Foam core  
Graph paper  
Examples of different styles of houses from around the world  
Glue  
Natural materials  
Robbins, Chandlers, Bruun, Bertel and Zim, Herbert. 1983. *Birds of North America: A Guide to Field Identification*. New York: Golden Press.

#### Procedure:

1. Examine the examples of the different styles of traditional architecture from around the world. Discuss the relationship between the style of the home and the materials that are available in the environment where the home was built. Some web sites which could be helpful are:

<http://www.greatbuildings.com/>

<http://www.norfolk-county.com/aerc>

<http://whyy.org/aie/page2.html>

2. The students will research and come up with a list of birds that nest in this area.
3. Discuss the types of nests that these birds build. Where do they nest? How are their nests different? What environmental influences might affect the design of nest? A useful web site is <http://birding.about.com/cs/buildhouses/index.htm>
4. Students will work individually to create an original birdhouse design for the species of their choice on paper, taking into consideration the above discussion questions.
5. As a class, the students will devise a scoring rubric to judge the quality of the birdhouse designs.
6. Construct the birdhouse model out of foam board. Attach the natural materials (leaves, moss, stones, etc.) to the outside of the birdhouse.
7. Students will evaluate each birdhouse according to the scoring rubric established by the class.
8. Discuss the design choices and problems of creating a birdhouse that could work for a particular species of bird.

Evaluation:

Class participation

Class rubric

Effective birdhouse design

Effective use of natural materials

Creativity

Evidence of research

Effort

## **Lesson Eleven**

### **Environmental Art**

This lesson involves spending some time outside in a natural environment. The area should have a variety of plants and trees available for the students to work with. In southern Alberta, the wind may also have to be taken into consideration. The students will be creating an artwork on site that will be documented with a photograph. Andy Goldworthy is an artist whose work could be studied for this project. He combines natural materials on site and then photographs the sculptures that he creates. He uses leaves, twigs,

blades of grass, snow, water, and light. He uses only thorns, twigs and water as binding agents. His work may last a few days or only a few minutes.

Materials:

Camera and film

*Hand to Earth: Andy Goldsworthy Sculpture, 1976-1990.* Harry N. Abrams Inc., 1993.

Baker, Kenneth. 2000. *Wall at Storm King.* New York: Harry N. Abrams, Inc.

Video- *Nature and Nature: Andy Goldsworthy.* East Sussex: The Roland Collection

Procedure:

1. Examine the work of Andy Goldsworthy. Discuss how he uses natural materials to create sculptures. How does he use color, value, and pattern? How does the arrangement and direction of lines and the shapes that he creates affect the composition? Does he create a focal point or dominant area? How does the texture of the natural objects contribute to the design of his work?
2. The students will examine the natural materials in the chosen area. Discuss the lines, shapes, textures, values, repetition and color of these objects.
3. Give the students a time limit to gather materials and to create their sculpture. Stress that there is to be no damage to the environment as they collect their materials.
4. Photograph the sculptures.
5. After returning to school, the students will write a short essay about their experience.
6. When the photographs have been developed, the class can discuss the aesthetics of each sculpture.
7. Display the photographs with the essays.

Evaluation:

Participation in class discussions

Effectiveness of sculpture

Written description

Effort

# Section Two

## Global Art

### Lesson One

#### Rain Forest Dodecahedron

Rain forests are forests that grow in continually wet conditions. They occur in areas wherever the annual rainfall is more than 80 inches. They once covered approximately 20% of the Earth's land surface, but now cover less than 7%. Tropical rain forests grow in more than 50 different countries, with Brazil having the largest rain forest area in the world.

A rain forest is made up of four different layers. The tallest trees grow to heights of 115 to 250 feet. They have small leaves, umbrella shaped crowns and tall slender trunks. There will usually be only one or two of these large trees per acre. Below this layer is the canopy. It is like a thick green carpet of flat crowned trees that grow from 65 to 100 feet tall. These are the flowering and fruit bearing trees. Below the canopy is a layer of smaller trees that don't grow any taller than about 15 feet. The forest floor is the fourth layer. It is sheltered from the sun and wind and has high humidity levels. Seedlings will be growing on the forest floor but other vegetation is sparse, mainly because of lack of light.

In this lesson, students will work in groups to create dodecahedrons (12 sided figures). Each group will research and depict a rain forest from a different area of the world. Each dodecahedron can be hung from the ceiling. Students will discuss the differences and similarities of rainforests from around the world.

#### Materials:

Poster board

Paint

Atlas

Paint

Markers

Scissors

Magazines, travel brochures

Glue

Paintbrushes

Procedure:

1. Divide the students into a number of groups. You should have at least four different groups to represent the variety of types of rainforests: flooded mangroves of coastal Southeast Asian Islands, high altitude cloud forests of South America, temperate rainforests of the North American Pacific Northwest, and the tropical forests along the equator.
2. Each group will research their area. They will need to determine the types of vegetation, products made from rainforest materials, people who live there, animals of the area, cause of deforestation in the area, projects or environmental groups that are working to stop deforestation in the area or suggestions to help stop deforestation.
3. Trace the pattern for one side of the dodecahedron on the poster board. Make 12 copies of the pattern.
4. Each of the 12 sides will have different information:
  - Side 1- Name of group members
    - Area of the world where the rainforest occurs
    - Type of rainforest (see above)
  - Side 2- Map of the area the rainforest covers showing the countries where it is located
  - Side 3- Drawings of three products that we get from this rainforest
  - Side 4- Drawing of one activity in the daily life of people who live in this rainforest
  - Side 5- Written description of the way of life of these people
  - Side 6- Drawing/painting of typical plants
  - Side 7- Drawing/painting of typical animals
  - Side 8- Drawing/painting of typical insects
  - Side 9- Drawing/painting of typical birds
  - Side 10- Drawing/painting/collage of deforestation activities in the area
  - Side 11- Written suggestions for ways to stop deforestation
    - Examples of projects in the area to stop deforestation
  - Side 12- Collage of rainforest impressions- things that the group thinks are important or significant about the rainforest area that they studied.
5. Students will compare the different types of information about the rainforests from around the world. They will look for similarities and differences.

6. Students will discuss the shape of the dodecahedron. How does it contribute to the finished product? What could the shape represent? (a globe) How can the shape be evaluated on the basis of function and attractiveness?

Evaluation:

Group cooperation

Evidence of research

Meets 12 criteria

Effort

## **Lesson Two**

### **Jungle Prints**

Henri Rousseau (1844-1910) painted tropical jungle scenes totally from his imagination. He never actually visited the exotic jungles that he portrayed. Rousseau never studied art and didn't begin painting until later in his life. Other artists and art critics of his time made fun of his work, calling it simple and childlike. Rousseau was undaunted and had faith in his artwork. Today his paintings are shown in the great art museums of the world. He is best known for his paintings of jungle scenes with lots of thick green vegetation, flowers and jungle animals. He loved to copy plants and animals from books, mixing and matching images to suit his exotic scenes. He meticulously copied every leaf and all its details.

In this lesson, students will create a jungle print in Rousseau's style using actual leaves.

Materials:

Examples of Rousseau's artwork

A variety of leaves that have been pressed flat

Tempera paint

Brayer (or rolling pin)

Drawing paper

Flat pan (or cookie sheet)

Paintbrushes

Newspaper

Procedure:

1. Examine examples of Rousseau's work. Discuss how he captured the detail of the plants and animals in his paintings. Is he able to establish

- a sense of depth or do his paintings appear to be flat and two-dimensional?
2. Place some green paint in the flat pan. Roll it with the brayer.
  3. Place a flat leaf on the newspaper. Roll over it with the paint-covered brayer until the leaf is completely covered.
  4. Place the leaf, with the paint side down, on the drawing paper. You will want to place it so that it looks like it is growing up from the bottom of the paper which will be the floor of the jungle or hanging from the top, like the leaves hanging down from a tree. The leaf prints will be used to frame the central composition. Place a piece of scrap paper over the leaf and gently press down. Carefully lift the paper and the leaf from the drawing paper.
  5. Mix several different tones of green by mixing different paint colors in the flat pan. Add white to make a light green, black to make a darker green, yellow to make yellow green, etc. Experiment with different color mixtures.
  6. Use a leaf that has a different shape and repeat the printing process with each of the different shades or tones of green.
  7. Let the print dry. While the print is drying, research the areas of the world that have tropical jungles. Choose one of these areas and determine what types of flowering plants, animals and insects would live in your tropical jungle. Identify the area of the world that your tropical print represents on the back of the drawing paper.
  8. Add the appropriate flowers, fruit, jungle animals or insects to the jungle scene using the paint and paintbrushes. Add details of the plants, animals and insects to create an illusion of texture.

Evaluation:

Experimentation with color mixing

Evidence of research

Appropriateness of plants, animals and insects

Attention to detail

Effort

## Lesson Three

### Rainforest Carnival

Rainforest culture could be presented to the class or even to the entire school in the form of a rainforest carnival. This could be planned to coordinate with the *Grade 8 Social Studies curriculum Topic C: South America: A Case Study of Brazil*. The students could work in groups to provide information about Brazilian food, sports, government, industry, education, people, clothing, history, religion, and art. The carnival could also include other areas of the world that have rainforests. These areas could coordinate with *Grade 7 Social Studies Topic A: Culture*. The display area could be decorated with the following rainforest items.

#### Materials:

Clay	Pennies
Water	Paint
Brown grocery bags	Stapler
Twine	Balloons
White glue	Paint brushes
Hot glue gun and glue	

Yolen, Jane. 1993. *Welcome to the Green House*. New York: G.P. Putnam.

#### Procedure:

Discuss the illustrations by Laura Regan in *Welcome to the Green House*. Laura Regan is known for her oil paintings of exotic flora and fauna. This is her first book illustration. She uses gouache for the illustrations. Discuss how her painting style contributes to the image of the tropical rainforest as a mysterious place.

#### Poison Arrow Frogs

1. The students will research the types of frogs that live in rainforests. There are lots of great Internet sites that have information about frogs. Two of these are <http://allaboutfrogs.org/frogInd.shtml> and <http://www.csu.edu.au/faculty/commerce/account/frogs/frog.htm>.
2. Give each student a penny. Poison Arrow frogs are often this small. The penny can be used to check that the frogs are the right size. Divide the clay among the students. If it isn't possible to fire the frogs in a kiln, "air dry" clay can be used.



3. For the body, make an egg shape. Make four long worm like rolls for the legs. To attach the legs to the body, you will need to moisten the top of the leg and the area on the body where you are attaching it. Look at pictures of frogs obtained during research and shape the legs accordingly.
4. Let the frogs dry.
5. Paint in the appropriate colors.
6. Repeat the steps for other types of frogs, keeping in mind their size and coloring.

#### Vines

1. Open up the ends of the grocery bags so that you have a long flat piece of brown paper.
2. Twist the paper tightly like you were wringing out a wet rag.
3. To make longer vines, staple a number of paper bags together and twist.

#### Leaves

1. Paint washes of different shades of green paint over grocery bags.
2. Cut the paper into a number of different leaf shapes.
3. Attach the leaf shapes to the vines with the hot glue.

#### Nests

1. Twine is used to create nests similar to those found in a rainforest. The twine resembles dried grass or vines that birds in the rainforest would use.
2. Mix 1 cup of white glue with 1 cup of water.
3. Blow up a balloon. Wrap the twine around the balloon, painting the glue mixture over the twine as you wind it.
4. Completely cover the balloon with twine. Attach some strands of twine to the bottom of the nest and the hanger.
5. Hang to dry.
6. When dry, pop the balloon and make a hole for the opening.

#### Evaluation:

Evidence of research

Group cooperation

Effort

## Lesson Four

### Papermaking

The process of making paper was first developed in Egypt. The Egyptians began to make a form of paper from papyrus, which grew along the Nile River. Strips were cut from the reed like stems of the plant, placed in layers, pounded and dried. Around the 2<sup>nd</sup> century B.C., the Chinese began to make sheets of paper using vegetable fibers. The fibers were steeped in water to soften them. The liquid was poured through a woven screen, leaving the fibers on the surface. The wet fibers fused together in a sheet of paper as they dried. This basic method is still used today.

Papermaking can be easily done in the classroom. It is a great way to teach recycling using scrap paper to make new paper. Flower petals from the wildflower garden can be incorporated into the papermaking process to create beautifully textured paper.

#### Materials:

Sponge	Large pan
Old towels, sheets or felt	Newspaper
Blender	Water

Used paper (junk mail, newspaper, lunch bags, Christmas wrap, construction paper, computer paper, tea bags, coffee filters, etc.)

Deckle and Mould (an old picture frame and some mesh, a clothes hangar and some pantyhose, an embroidery hoop with mesh stretched over it, two coffee cans with the ends cut out of them and a piece of screen mesh)

Dried wildflower petals

#### Procedure:

1. Fill the blender to the \_ mark with water.
2. Tear the paper into small pieces and add two handfuls to the water.
3. Run the blender until the paper has disintegrated and dissolved. This mixture is called the slurry. More paper can be added at this point to create thicker paper. The thickness of the paper will depend on the amount of paper in this mixture.
4. Pour the slurry into the large pan.
5. Add the wildflower petals and stir to evenly disperse.
6. Hold the mould with the screen side up. The deckle is placed on top to create a smooth, even edge to the paper.

7. Dip the edge of the mould and deckle into the side of the pan that is closest to you. Use a scooping motion to capture the pulp on the screen.
8. Lift the deckle and mould straight up, allowing the water to drain through the screen. Shake gently a few times. Be careful not to shake too hard, as this motion will cause the pulp to gather on one side of the mould.
9. Lift the deckle off and set aside.
10. Transfer or "couch" the pulp by turning it upside down on a sheet that has been placed on a stack of old newspapers or towels. Felt also works well for soaking up the moisture.
11. Sponge off the excess water.
12. Remove the mould by holding a corner of the sheet while gently lifting at the same corner.
13. Let the paper air-dry.
14. Carefully peel the paper away from the sheet, starting at one corner.

If you are using coffee cans as your deckle and mould, you will use a slightly different method. This method is called the "pour method."

1. Remove both ends of the coffee cans.
2. Place one of the coffee cans in the large pan.
3. Place the screen over the top of this can. If you are using a wire screen be sure to tape the edges of the screen to avoid scratches and unraveling.
4. Place the second coffee can on top of the screen.
5. With one person holding the cans in place, another person pours the slurry into the top can.
6. When the water has drained, lift the top can and remove.
7. Carefully lift the mesh and trapped slurry.
8. Turn the mesh over and place on a sheet.
9. Press the back of the mesh with a sponge to soak up the excess water. You should be able to gently lift the screen off of the paper.
10. Let the paper sheet air-dry.

The left over pulp can be strained and formed into small balls. These balls can be reused by adding water and mixing with more pulp. Laminating 2 or more sheets together can make larger sheets of paper. Lay the sheets side-

by-side while still wet, overlapping them slightly. Use a sponge to gently press the edges together.

Variation:

Layering- this involves placing leaves or petals between two thin layers of paper. The paper will reveal soft textures and colors of the objects that are sandwiched in between. Once the first sheet of paper has been formed and placed on the sheet to dry, leaves or flower petals are placed on top of it. These materials can be presoaked to soften them so that they will lie flat. Allow this to dry for several hours, then place another sheet of paper on top. Place a dampened felt on top of the sheets of paper and leave overnight to absorb the moisture.

Evaluation:

Group cooperation

Following directions

Effort

## Lesson Five

### Flower Pounding

This is an old Japanese way of printing with plants. Flower pounding uses fresh flower blossoms to create spectacular designs that look as beautiful as a watercolor painting. You will have to experiment with different flowers and leaves to see what colors and patterns you will get. Any flowers, leaves, or even weeds, will work. The exception is white flowers, which don't transfer any color pigment. Some red flowers may pound out brown and some orange flowers may pound out purple. You never know what you're going to get until you try it. You may want to test your ideas on a piece of scrap fabric first.

Materials:

Metal hammer

Wooden cutting board or hard surface

Clear plastic

Newspaper

Fresh flowers and leaves

Cloth (muslin works well)

Tape

Dull knife or spoon

Salt  
Distilled vinegar

Water

Procedure:

1. Place fabric, right side up, on the hard pounding surface. If you are going to print on a T-shirt, put newspaper inside the T-shirt so the plant liquid doesn't run through to the backside.
2. Arrange the flowers and/or leaves in a design. Work in small sections at a time. If you are using a large, thick flower you may want to pull the petals off and reassemble it flat on the fabric. Individual petals laid out in a pattern work the best. If you smash the whole blossom, you may get an indistinct blob of color.
3. Cover the plants with the clear plastic. You can tape the plastic down to the surface so that the plants don't move as you pound.
4. Strike with the hammer until the plant shape has been transferred onto the fabric. Pound evenly over the whole design so that the flower pigment transfers evenly.
5. Scrape off the plant material with a dull knife or spoon. You may need to let it dry first so that you don't smear the flower pigments when you scrape off the plant material.
6. Soak the fabric in a solution of    cup salt to    gallon water and    cup of clear distilled vinegar. This will set the plant color.
7. Rinse the fabric in cold water and machine dry to help set the colors even more.
8. You can outline the flower with a fine line permanent marker to give extra definition to the design.

The fabric pieces can be used for a number of projects. Each student could create one panel for a class quilt project. They can be laminated and used as placemats or bookmarks. A simple frame could be made for them from poster board or mat board. They make wonderful greeting cards.

Variation:

Leaf Prints

The best time to do this project is in the summer or fall when the leaves are well developed but still juicy. They are best picked after a hot spell rather than after a rain. Pine needles will work anytime.

Materials:

Water	Rusty metal
Newspaper	Leaves
White or off white fabric	Bucket
Spoon	Scissors
Hammer	Iron
Gloves	

Procedure:

1. Fill the bucket with water.
2. Gather up some rusty metal. Scrape the rust onto a sheet of newspaper. Wearing gloves will prevent the rust from staining your hands.
3. Use the back of the spoon to grind the scrapings into a fine powder.
4. Add the rust powder to the water and stir. There should be enough rust to make a rich, brown color.
5. Choose a leaf to work with. Not all leaves will work for this project. Leaves that have lots of natural tannins will work the best. You will have to experiment to find the best ones.
6. Lay the leaf on a smooth hard surface.
7. Cut a piece of fabric larger than the leaf and lay it over the leaf. This project can also be done on paper, though you must be very careful when pounding so that you don't rip the paper. You could try putting the paper under your leaf and get two prints at once.
8. Carefully tap the fabric with the hammer. You will be able to see the shape of the leaf appearing. Keep tapping until you have a good impression.
9. Lift the fabric and peel away the leaf.
10. Soak the cloth in water. This will prevent streaking when you put it in the rusty dye bath.
11. Dip the cloth in the dye bath and let the color soak in. The longer it soaks, the more yellow the cloth will become and the darker the leaf design.
12. Hang to dry.
13. Press with a warm iron.

If you can't find enough rusty material, you can also purchase ferrous sulphate and add it to the water to make the rusty dye bath.

Evaluation:

Neatness

Effective design

Following directions

Effort

## **Lesson Six**

### **Grass Stars**

Grass stars are a Scandinavia art. The last heads of grain harvested from the fields were used to create them. The grass stars were woven and kept in the farmer's home until the next planting to ensure a good crop the next year. Any grass that has a nice long stem will work.

Materials:

15 heads of grain

Warm water

Basin

Natural raffia

Procedure:

1. Discuss the symbolism of grass stars to the Scandinavian people. Have the students brainstorm other examples of symbolism using natural materials. They can refer to other cultures or to things that are used in their own culture (Pennsylvania Dutch hex signs, Japanese ikebana, corn husk dolls).
2. Strip away the leaves from the grass, leaving the grain attached.
3. Place the grass in the basin filled with warm water and soak for at least one hour. When the grass is pliable enough, the tips will bend without breaking.
4. Tie three stems together near the grain heads with a piece of raffia. Spread the stems out.
5. Insert an fourth and fifth stem from each side in an under-and-over weaving pattern.
6. Bend the two outermost stems to weave them loosely through the others. Repeat with the next two outermost stems.
7. Insert two more stems, one on each side, and continue weaving. The braid should be continually getting wider. You will finish with a triangular shape.

8. Add two more stems and repeat the weaving process. Continue until you have used all 15 stems.
9. Gather half of the stems on one side and tie them with raffia. Repeat on the other side.
10. To make the star shape, tie the plaits together.

These grass stars can be mounted on cardboard or poster board and displayed on the wall.

Evaluation:

Following directions

Neatness

Effort

## **Bark Painting**

Bark has been used as a canvas by many cultures of the world. The Australian aborigines are one of these cultures. The selection and treatment of the bark that was to be used as the painting surface was very important. The artist would remove sheets of bark from trees during the rainy, monsoon season. The layers of bark would be carefully removed to reveal a thin fibrous sheet. Firing cured this sheet. It was then flattened on the ground with rocks for weights. These aboriginal artists worked with basic earth pigments of red, yellow, black and white. They were made from various minerals and rock deposits which were ground into fine powders, resources that were available in their environment. They used a number of different fixatives such as bee's wax, honey, juices from bulbs, and egg yolks. Their brushes were made from strips of stringy bark or pliant green twigs. These were either whittled or chewed to make the bristles. The artists often chose animals and plants as the subjects of their paintings. The animal shapes were usually simple exterior shapes with the insides patterned by intricate lines and cross-hatching. The paintings were also used to tell stories call "dreamings" which were about aboriginal folk tales and myths. The paintings could also depict journeys and landforms.

The Otomi Indians of Central America also made bark paintings. They usually showed flowers, birds, animals and scenes of village life. The colors they used were brilliant and fanciful; they could have flowers of different



colors blooming on the same plant. Leaves could be blue or orange. Spots of color often leave the figures and trail in lines over the bark. The painting would often be bordered with geometric designs.

In this lesson, the students will prepare their own bark painting using brown paper as their canvas. They can also use bark but it should be stressed that removing bark from a live tree will damage it and may even kill the tree. They will depict flowers, birds and insects that inhabit their wildflower garden and create a written story to accompany their painting. The story can be in the form of a folk tale, myth or a story of a journey.

#### Materials:

Brown grocery bags or bark	Tempera paint
Pencils	Brushes
Water	Black markers
Iron	Writing paper
Sketching paper	
Examples of Australian Aboriginal art	
Examples of Otomi art	
Examples of Aboriginal "dreamtime" stories	

#### Procedure:

1. Examine the style of Australian aboriginal art and Otomi art. Look for similarities and differences. Discuss the differences in colors used and the painting styles. What techniques do they use to unify their composition? Discuss the use of abstraction and distortion in the examples. Are there symbolic meanings contained within the art of these two cultures? What environmental factors may have influenced the development of these styles of painting?
2. Read some examples of Australian "dreamtime " stories. How are these stories reflected in their art?
3. Cut a rectangle of paper from the brown grocery bag. Crumple it thoroughly. Iron the paper out.
4. Plan which flowers, birds or insects will be included in the painting and how the written story will relate to the painting.
5. Sketch some ideas on paper. Practice with several different designs. Practice the different styles of line and dot formation used in the examples. Leave an area around the edge of the design for a border pattern.

6. Draw the design lightly on the brown paper with a pencil.
7. Fill in the figures with tempera paints. The background is not painted so the textured brown paper will show.
8. Write the story to accompany the painting. The length of the story should be predetermined.
9. Students can present their paintings and read their stories to the class.

Evaluation:

Participation in discussion of art styles

Knowledge of characteristics of each style

Effective design

Effectiveness of story and relationship to painting

Presentation

Effort

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### Video:

*Nature and Nature: Andy Goldsworthy*. East Sussex: The Roland Collection.

### Helpful Web Sites:

Architecture and Garden Design  
<http://www.greatbuildings.com/>

<http://www.norfolk-county.com/aerc>  
<http://why.org/aie/page2.html>  
<http://darkwing.uoregon.edu/~helphand/homepage.html>

#### Birds and Birdhouses

<http://birdwebsite.com/>  
<http://hummingbirdwebsite.com/>  
<http://birding.about.com/cs/buildhouses/index.htm>

#### Butterflies

<http://mgfx.com/butterfly/>

#### Environmental Education

<http://www.eelink.net>

#### North American Association for Environmental Education

<http://cgee.hamline.edu/K12pro>

On-line dialogues with guests who are experts in a particular area of environmental study

<http://www.geoec.org>

#### Global, Environmental and Outdoor Education Council

<http://www.cwf-fcf.org>

#### Canadian Wildlife Federation

<http://www.wildaboutgardening.org>

#### Canadian Wildlife Federation site

<http://www.sierraclub.org/education/>

#### Sierra Club

#### Frogs

<http://www.csu.edu.au/faculty/commerce/account/frogs/frog.htm>

<http://allaboutfrogs.org/frogInd.shtml>

#### Rainforests

<http://www.savetherest.org/home.html>

<http://www.amazoninternational.org/>